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10/578,791

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EXAMINER

JACOB, MARY C

ART UNIT

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2123

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/578,791	<b>Applicant(s)</b> WEILER ET AL.	
	<b>Examiner</b> MARY C. JACOB	<b>Art Unit</b> 2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 4/4/07.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/3/06</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. The preliminary amendments filed 4/4/07 have been received and considered. Claims 1-20 have been presented for examination.

#### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 16'. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claims 1 and 9 are directed to "Method to determine a blank form" of an elastic component and an elastic non-articulated wiper arm. However, it is unclear how the method set forth in the claims actually produces a blank form of the elastic component or elastic non-articulated wiper arm. The claim language sets forth that the blank is determined "with the default of a target form", however, a counter force is applied to a "working model" of the elastic component, not the "default of a target form". There is nothing done with the "default of a target form" that would "determine" the blank using "the default of a target form". Also, there does not appear to be any claim limitations that recite any output of a final "blank".

6. Claim 1 recites the limitation "the default of a target form" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

7. Claim 9 recites the limitation "the default of a target form" in line 2. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 15 appears to be a product-by-process claim directed to a "non-articulated wiper arm" produced by the process set forth in lines 1-6. However, it is unclear how the process set forth actually produces a non-articulated wiper arm. First, lines 1-2 of the claim set forth "Non-articulated wiper arm, characterized by a blank form, with the default of a target form". This language is unclear. Is the wiper arm represented by "a blank form" or "the default of a target arm"? Further, a counter force is applied to a

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"working model" of the wiper arm, not the "blank form" or the "default of a target form".

There is nothing done with the "blank form" or the "default of a target form" that would produce a non-articulated wiper arm. There does not appear to be any output of an actual "wiper arm".

9. Claim 15 recites the limitation "the default of a target form" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Due to the number of 35 U.S.C. 112, second paragraph rejections, the examiner has provided a number of examples of the claim deficiencies in the above rejection(s), however, the list of rejections may not be inclusive. Applicant should refer to these rejections as examples of deficiencies and should make all necessary corrections to eliminate the 35 U.S.C. 112, second paragraph problems and place the claims in proper format.

Due to the vagueness and a lack of a clear definition of the terminology and phrases used in the specification and claims, the claims have been treated on their merits as best understood by the examiner.

### ***Claim Interpretation***

10. Claims 1-20 recite reference characters in parenthesis. Section 608.01 (k) of the MPEP states: "Reference characters corresponding to elements recited in the detailed description and the drawings may be used in conjunction with the recitation of the same element or group of elements in the claims. The reference characters, however, should

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be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. The use of reference characters is to be considered as having no effect on the scope of the claims.”

***Claim Rejections - 35 USC § 101***

11. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

12. Claims 1-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

13. Claims 1-14 are directed to a “method to determine a blank form” of an “elastic component” and an “elastic non-articulated wiper arm”. However, the claim limitations set forth do not appear to be tied to another statutory class (such as a particular apparatus) nor do they appear to transform underlying subject matter (such as an article or materials) to a different state or thing. Therefore, the claims do not appear to be patent eligible processes under 35 U.S.C. 101.

14. Claims 15-20 do not appear to fall into a statutory category of invention, and therefore, are directed to non-statutory subject matter. Claim 15 sets forth a “non-articulated wiper arm”, but does not set forth any recitation that this wiper arm is “produced” or is the final “product”. The claim also appears to set forth steps in a process or method, however, the process or method is not tied to another statutory class of invention (for example, it is not tied to the wiper arm) and does not appear to

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produce any final result. Therefore, it is unclear whether the claim is directed to the “wiper arm” or the process.

***Claim Rejections - 35 USC § 102***

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

16. **Claims 1, 4-6, 9, 12-15, 18-20** are rejected under 35 U.S.C. 102(e) as being anticipated by Kota et al.

17. As to **Claims 1, 9 and 15**, Kota et al teaches: a method to determine a blank form of an elastic component/non-articulated wiper arm of a windshield wiper and a non-articulated wiper arm (column 3, lines 46-50 and line 58-column 4, line 4; Figure 9), with the default of a target form (Figures 1 and 2 and descriptions), which the elastic component/wiper arm is supposed to assume under the effect of at least a predefined initial force (column 1, lines 34-35; and lines 49-51; Figures 1 and 2, “Fin” and description), characterized in that a counter force that at least essentially opposes the predefined initial force (column 3, lines 48-50; Figure 8, lower image; column 4, lines 41-47, specifically item “4”) is applied to a working model (Figure 8, lower image;

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column 5, lines 27-30) of the elastic component/wiper arm, whose model blank form is at least similar to the target form (Figures 8, top model and Figure 9).

18. As to **Claims 4, 12 and 18**, Kota et al teaches: a deformation of the working model is simulated under the counter force (column 3, lines 48-50; Figure 8, lower image; column 4, lines 41-47, specifically item “4”; column 5, lines 27-30).

19. As to **Claims 5, 13 and 19**, Kota et al teaches: characterized in that a finite element method is used in the simulation (Figure 8; column 4, line 8; column 5, lines 24-30).

20. As to **Claims 6, 14 and 20**, Kota et al teaches: characterized by a sub-division into finite elements, in which at least a plurality of the finite elements divides a maximum of two separating surfaces with neighboring finite elements (Figure 8; column 4, line 8; column 5, lines 24-30).

### ***Claim Rejections - 35 USC § 103***

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation



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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

22. **Claims 2, 3, 7, 8, 10, 11, 16, 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kota et al as applied to claims 1, 9 and 15 above, in view of Tworzydlo et al ("Knowledge Based Methods and Smart Algorithms in Computational Mechanics", Engineering Fracture Mechanics, Vol, 50, No. 5/6, pages 759-800, 1995).

23. Kota et al teaches using finite element analysis wherein a counter force that opposes a predefined initial force is applied to a working model of an elastic component/non-articulated wiper arm (Figure 8 and description).

24. Kota et al does not expressly teach (**claims 2, 10 and 16**) wherein the counter force is increased in intermediate steps.

25. Tworzydlo et al teaches a study of methods of automation of the finite element analyses that would supplement the human designer since the involvement of the human expert in the decision making process represents a major part of the time and effort of performing analysis and design (page 759, Abstract, lines 1-3; Introduction, paragraph 2, lines 5-6; paragraph 3; paragraph 4, lines 1-2) and presents a finite element analysis of a windshield wiper where a force on a working model is increased in intermediate steps (pages 787, 789 and 793, section 7.2.3, specifically, "incremental loading"; Figure 11).

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26. Kota et al and Tworzydło et al are analogous art since they both set forth a finite element analysis of a windshield wiper blade.

27. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the finite element analysis of the elastic component/non-articulated wiper arm as taught in Kota et al to further include applying a force, such as the counter force, increasingly in intermediate steps as taught by Tworzydło et al since Tworzydło et al teaches a study of methods of automation of the finite element analyses that would supplement the human designer since the involvement of the human expert in the decision making process represents a major part of the time and effort of performing analysis and design (page 759, Abstract, lines 1-3; Introduction, paragraph 2, lines 5-6; paragraph 3; paragraph 4, lines 1-2).

28. As to **Claims 3, 11 and 17**, Kota et al as modified by Tworzydło et al teaches: after at least one intermediate step, a current counter force is aligned in its direction at least partially dependent upon a deformation of the working model (Kota et al: Figure 8; column 5, lines 27-30; Tworzydło et al: section 7.2.3, paragraphs 1 and 2; Figure 11).

29. As to **Claims 7 and 8**, Kota et al as modified by Tworzydło et al teaches: a deformation of the working model is simulated under the counter force (Kota et al: Figure 8; column 5, lines 27-30; Tworzydło et al: section 7.2.3, paragraphs 1 and 2; Figure 11).

***Conclusion***

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

31. Kota (US Patent 6,301,742) teaches an arrangement wherein an input force, such as that which is applied by a windshield wiper arm is distributed to a plurality of locations in predetermining magnitudes along a compliant member such as a windshield wiper blade.

32. Zimmer et al (5,390,391) teaches a windshield wiping device with variable contact force.

33. Zimmer et al (US Patent 6,349,447) teaches a wiper blade with a wind scoop elastically supported on the wiper blade.

34. Billow et al ("Simulation of Aerodynamic Uplift Consequences on Pressure Repartition-Application on an Innovative Wiper Blade Design", Vehicle Aerodynamics Design and Technology-SAE, pages 235-243, 2001) teaches aerodynamic simulation to determine the consequences of aerodynamic uplift on pressure repartition under a wiper blade positioned on a car windshield.

35. Kota et al ("Design of Compliant Mechanisms: Application to MEMS", Analog Integrated Circuits and Signal Processing, 29, 7-15, 2001) teaches a method to design jointless mechanisms with distributed compliance.

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary C. Jacob whose telephone number is 571-272-6249. The examiner can normally be reached on Tuesday-Thursday, 7AM-4PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Mary C Jacob/  
Examiner, Art Unit 2123

/M. C. J./  
11/6/08

/Paul L Rodriguez/  
Supervisory Patent Examiner, Art Unit 2123